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INVESTOR IN PEOPLE

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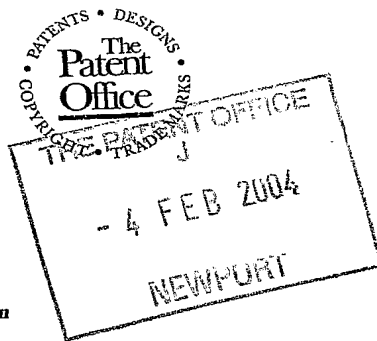
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1. Your reference

RAB.P04954GB

2. Patent application number
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04 FEB 2004

0402421.2

3. Full name, address and postcode of the or of each applicant (underline all surnames)

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Patents ADP number (if you know it)

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If the applicant is a corporate body, give the country/state of its incorporation

08802779001

4. Title of the invention

Automatic Performance Calibration (APC) for
Biometric Devices

5. Name of your agent (if you have one)

"Address for service" in the United Kingdom
to which all correspondence should be sent
(including the postcode)

Marks & Clerk
27 Imperial Square
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Gloucestershire GL50 1RQ

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00000018014

6. Priority: Complete this section if you are declaring priority from one or more earlier patent applications, filed in the last 12 months.

Country

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Date of filing
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Answer YES if:

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Patents Form 1/77

9. Accompanying documents: A patent application must include a description of the invention. Not counting duplicates, please enter the number of pages of each item accompanying this form:

Continuation sheets of this form	0
Description	2
Claim(s)	0
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Priority documents

☐ Translations of priority documents

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11. I/We request the grant of a patent on the basis of this application.

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Date

3 February 2004

12. Name, daytime telephone number and e-mail address, if any, of person to contact in the United Kingdom

Richard Bailey

01242 524520

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Automatic Performance Calibration (APC) for biometric devices

Introduction

As the principle of biometric personal identity verification becomes widespread, as in public applications for example, the issue of interoperability and equivalence of performance adopts increasing importance. This is particularly the case where applications are operated over multiple sites. In such an instance, a given individual may pass a biometric check at one location and fail at another, even using the same reference template and similar hardware. If the biometric equipment at a particular point of presence is calibrated differently to equipment at another, it is likely that actual performance will also vary, creating a high probability of the scenario mentioned above. The situation is further complicated by variables of environment and user psychology, making equivalence of both performance and user experience problematic. This can lead to further complications of process, especially in high profile applications such as border crossing, social service provision and the like.

The Proposal

It is proposed that an Automatic Performance Calibration (APC) module be created to continually monitor transactional performance and re-calibrate the biometric device automatically as required in order to achieve a pre-determined performance level. It is important to note the distinction between performance calibration and absolute calibration. The former seeks to achieve a given actual performance (in terms of acceptable error rates) while the latter is simply calibration to a known reference.

The APC module will adjust device performance dynamically according to a pre-determined reference. The organisation implementing the biometric application may thus specify a target level of performance and the biometric devices deployed will be automatically and continually calibrated in order to achieve this level of performance (providing of course it is within the bounds of the device in question). The APC module will be provided as software which may be easily integrated with operational software and hardware for the purpose of biometric identity verification checks.

Operation

Operation of the APC is as follows. The biometric device will, upon each attempted transaction, output a 'score' to indicate how closely the live biometric sample matches with the stored reference. Within the range of possible scores will be a threshold level, below which a match will be regarded as negative, above which a match will be regarded as positive. This threshold setting is sometimes manually programmable and will determine the relative performance of the device in question, in terms of realised error rates. The APC will continually adjust this threshold in order to realise the desired performance level.

Description

Automatic Performance Calibration (APC) for biometric devices

The operational steps are as follows;

- 1] Upon a match transaction, the biometric device outputs a score.
- 2] The APC numbers each transaction and writes the score to a database.
- 3] Upon reaching a set number of transactions (programmable) the APC sums the scores and divides the total by the number of transactions in order to arrive at an average score.
- 4] The APC compares this average score with the pre-programmed aspirational performance.
- 5] If the score is not aligned with the required performance according to a given tolerance, the threshold setting of the biometric device will be altered in order to realise a closer alignment.
- 6] The process will be repeated after every batch of transactions, ensuring that actual performance is maintained.

The use of APC with a given biometric device, such as may be found within a self service kiosk for example, will ensure that a given level of performance is maintained, regardless of initial device calibration, environmental and operational variables, or other conditions which may affect realised performance. Furthermore, this benefit is increased pro rata as the number of deployed devices increases, an important consideration for major applications.

Conclusion

The APC represents an innovative breakthrough with regard to the realised and sustainable performance of biometric identity verification devices. As such, it will play an important part in large scale public applications which utilise biometric technology.

A software simulation of the APC will be built in order to demonstrate this concept.



